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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,832	08/22/2001	Nobuo Matsui	Q65917	7288
7590 04/16/2004 SUGHRUE, MION, ZINN, MACPEAK & SEAS 2100 Pennsylvania Avenue, N.W. Washington, DC 20037			EXAMINER GOFF II, JOHN L	
			ART UNIT 1733	PAPER NUMBER
DATE MAILED: 04/16/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,832

Applicant(s)

MATSUI ET AL.

Examiner

John L. Goff

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ed

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 7-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/25/04 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 1, 2, 8, 9, 11, 13, 15, and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 8 require "curing said adhesive while applying pressure, wherein a cushioning member is interposed between a pressing surface of said pressing magnet jig and outside surfaces of the mated portions of said non-magnetic members to put the bonding

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surfaces into uniform contact with said adhesive sheet.” It is unclear where in the specification the cushioning member is described as putting the bonding surfaces into uniform contact with the adhesive sheet. It is noted applicant has referred to page 6, lines 22-24 for support. However, page 6, lines 19-26 state “The size and magnetic force of the magnet are selected such that it applies pressure of 0.025 kg/cm^2 to 0.8 kg/cm^2 , more preferably 0.2 kg/cm^2 to 0.6 kg/cm^2 to the mated portions, depending on the thickness and area of the mated portions and the type of the non-magnetic material. If pressure is less than 0.025 kg/cm^2 , a bonding force becomes too smaller because the bonding surfaces are not put into uniform contact with the adhesive sheet, resulting in a likelihood that the pressing magnet jig 1 and the pressure-receiving, soft-magnetic jig 7 may be detached by their own weights.” Thus, it appears a pressure of greater than 0.025 kg/cm^2 is attributed to uniform contact not the addition of cushioning members.

Claim Rejections - 35 USC § 103

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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6. Claims 1, 2, 9, 11, 13, 15, and 17 are rejected under 35 U.S.C. 103(a) as obvious over Sisson (U.S. Patent 2,713,379) in view of Brown (U.S. Patent 2,519,107).

Sisson is directed to bonding two parts using a magnetic jig. Sisson teaches two parts made of non-metallic materials. Sisson teaches mating the two parts via an uncured adhesive layer. Sisson teaches the adhesive layer comprises a thermosetting film, i.e. sheet. Sisson teaches placing the mated portion of the two parts between a pressing magnet jig and a pressure-receiving, soft-magnetic jig such that the adhesive is cured under constant pressure and a bond between the two parts is formed (Figures 2 and 3 and Column 1, lines 15-19 and Column 2, lines 28-31, 44-50, and 68-70 and Column 3, lines 3-9 and 17-22). Sisson is silent as to a specific teaching of attaching cushioning members to the surfaces of the magnetic jig in contact with the two parts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to attach cushioning members to the magnetic jig taught by Sisson as it was well known in the art to use cushioning members to prevent the jig from scratching, deforming, or otherwise damaging the parts as shown for example by Brown. As to the cushioning members putting the bonding surfaces of the non-metallic materials into uniform contact with the adhesive layer, it is noted Sisson as modified by Brown teaches applying a constant pressure to the mated portion of the two parts wherein the pressing magnet jig has a cushioning layer formed of synthetic rubber placed over the parts of the jig in contact with the mated portion such that the pressure applied by the pressing magnet jig with cushioning members is a constant/uniform pressure over the entire length of the mated portion which would result in the claimed uniform contact of the non-metallic materials with the adhesive layer.

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Regarding claim 9, Sisson is silent as to the pressing magnet including a handle. It is noted that the magnet jig taught by Sisson applies the magnetic force, i.e. pressure, while the soft-magnetic jig receives the magnetic force. However, the orientation of the magnet jig and soft-magnetic jig taught by Sisson differs from that shown by applicant in that the magnet jig taught by Sisson is arranged below the soft-magnetic jig. One of ordinary skill in the art at the time the invention was made would have readily appreciated modifying Sisson such that the soft-magnetic jig is arranged below the magnet jig wherein the magnet jig would have included a holding member such as for example a handle, as the pressing force applied would have been identical whether the magnet jig was above or below the assembly.

Regarding claims 11, 13, 15, and 17, Sisson does not specifically recite the claimed bonding conditions, i.e. the applied pressure, temperature, cooling rate, etc. However, Sisson does not suggest nor is Sisson limited to any particular bonding conditions and the general technique taught by Sisson would have been useful to bond a variety of parts using any number of bonding conditions such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine/optimize the bonding conditions in Sisson as modified by Brown as a function of the quality of bond produced, material worked upon, etc. as doing so would have required nothing more than ordinary skill and routine experimentation.

Brown is directed to cushioning devices applied to surfaces of clamps, clamping brackets, or the like. Brown teaches the cushioning devices are made from synthetic rubber, Neoprene, etc. Brown further teaches the cushioning devices prevent the surface of the work to which the clamps are attached from becoming scratched, deformed, or otherwise damaged (Figures 1-4 and Column 1, lines 1-11 and Column 2, lines 13-19, 32-37, and 44-48 and Column 3, lines 3-11).

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7. Claims 7, 10, 12, 14, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sisson in view of the admitted prior art (Specification pages 1 and 2) or alternatively, the admitted prior art in view of Sisson.

Sisson is described above in paragraph 6. Sisson is silent as to using the magnetic jig to bond two parts made of fiber-reinforced composite material useful for making an aircraft fuselage. However, it is noted Sisson is generally directed to the bonding of any two parts including non-magnetic parts. The admitted prior art is directed to bonding two parts together such as two fiber-reinforced composite materials. The admitted prior art teaches using the bonded fiber-reinforced composite materials to reduce the weight of transport vehicles including aircraft wherein the bonded fiber-reinforced composite materials comprise the main constituent members, i.e. the fuselage/skin/half-cylindrical members, of the vehicles (Specification page 1, lines 8-12). The admitted prior art further teaches the composite material parts are bonded through a method comprising applying an uncured adhesive to the mating portion of the parts, placing the mated parts in a jig wherein the parts are secured within the jig by forming through-holes in the parts and fastening bolts therethrough, curing the adhesive under pressure to form a bond at the mated portion, removing the bonded parts from the jig, and patching the through-holes in the bonded parts with protective material (Specification page 1, lines 26-28 and page 2, lines 4-8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the magnetic jig taught by Sisson to bond any two parts such as parts made of fiber-reinforced composite material useful for making an aircraft fuselage (i.e. half-cylindrical skin members) as it was known in the art to bond these parts using a jig as shown by the admitted prior art and only the expected results would be achieved, i.e. bonding without having to form

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through-holes through the parts. Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to bond the two parts taught by the admitted prior art using a magnetic jig such as the magnetic jig shown for example by Sisson as it was well known in the art to bond any two parts using a magnetic jig and only the expected results would be achieved, i.e. bonding without having to form through-holes through the materials.

Regarding claim 10, Sisson is silent as to the pressing magnet including a handle. It is noted that the magnet jig taught by Sisson applies the magnetic force, i.e. pressure, while the soft-magnetic jig receives the magnetic force. However, the orientation of the magnet jig and soft-magnetic jig taught by Sisson differs from that shown by applicant in that the magnet jig taught by Sisson is arranged below the soft-magnetic jig. One of ordinary skill in the art at the time the invention was made would have readily appreciated modifying Sisson as modified by the admitted prior art or the admitted prior art as modified by Sisson such that the soft-magnetic jig is arranged below the magnet jig wherein the magnet jig would have included a holding member such as for example a handle, as the pressing force applied would have been identical whether the magnet jig was above or below the assembly.

Regarding claims 12, 14, 16, and 18, neither Sisson nor the admitted prior art specifically recite the claimed bonding conditions, i.e. the applied pressure, temperature, cooling rate, etc. However, neither Sisson nor the admitted prior art suggest or are limited to any particular bonding conditions and the general technique taught by Sisson would have been useful to bond a variety of parts using any number of bonding conditions such that would have been obvious to one of ordinary skill in the art at the time the invention was made to determine/optimize the bonding conditions in Sisson as modified by the admitted prior art or the admitted prior art as

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modified by Sisson as a function of the quality of bond produced, material worked upon, etc. as doing so would have required nothing more than ordinary skill and routine experimentation.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sisson and the admitted prior art as applied above in paragraph 7, and further in view of Brown.

Sisson and the admitted prior art are silent as to a specific teaching of attaching cushioning members to the surfaces of the magnetic jig in contact with the two parts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to attach cushioning members to the magnetic jig taught by Sisson as modified by the admitted prior art or the admitted prior art as modified by Sisson as it was well known in the art to use cushioning members to prevent the jig from scratching, deforming, or otherwise damaging the parts as shown for example by Brown (Brown is described above in paragraph 6). As to the cushioning members putting the bonding surfaces of the non-metallic materials into uniform contact with the adhesive layer, it is noted Sisson as modified by the admitted prior art and Brown or the admitted prior art as modified by Sisson and Brown teach applying a constant pressure to the mated portion of the two parts wherein the pressing magnet jig has a cushioning layer formed of synthetic rubber placed over the parts of the jig in contact with the mated portion such that the pressure applied by the pressing magnet jig with cushioning members is a constant/uniform pressure over the entire length of the mated portion which would result in the claimed uniform contact of the non-metallic materials with the adhesive layer.

Response to Arguments

9. Applicant's arguments filed 3/25/04 have been fully considered but they are not persuasive. Applicant argues, "In contrast to Brown, the cushioning member of the present application is interposed between a pressing surface of the pressing magnet jig and the outside surfaces of the mated portions of non-magnetic members, and it functions to put the bonding surfaces from the pressing magnet jig into uniform contact with the adhesive sheet. This is done by selecting a pressure within range of from 0.025 kgf/mm² to 0.8kgf/mm² in the magnetic force of the magnet, thereby achieving sufficient bonding strength, and also improving workability in the use of the pressing magnet jig and the pressure-receiving, soft magnetic jig (emphasis added; see page 3, lines 14-17, page 6, lines 6-15, page 6, line 19 to page 7, line 1 of the specification).". As noted above, Sisson as modified by Brown (as well as Sisson as modified by Brown and the admitted prior art or the admitted prior art as modified by Sisson and Brown) teaches applying a constant pressure to the mated portion of the two parts wherein the pressing magnet jig has a cushioning layer formed of synthetic rubber placed over the parts of the jig in contact with the mated portion such that the pressure applied by the pressing magnet jig with cushioning members is a constant/uniform pressure over the entire length of the mated portion which would result in the claimed uniform contact of the non-metallic materials with the adhesive layer.

Applicant further argues, "In summary, none of Sisson or the admitted prior art, including JP '257, teaches or suggests a pair of half-cylindrical skin members made of a fiber reinforced composite material as the non-magnetic members constituting a fuselage of an aircraft so as to reduce the weight of transport vehicles, including aircraft, which are important features of the present invention as recited in amended claim 7." The admitted prior art page 1, lines 8-12 states

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“From the viewpoint of global environmental protection and energy saving, it has recently been desired to reduce the weight of transport vehicles such as aircraft, automobiles, etc. It has accordingly been studied to use aluminum alloys and/or fiber-reinforced composite materials as materials for their main constituent members.” (Emphasis added). Thus, the admitted prior art teaches it was known to use fiber-reinforced composite materials (i.e. non-magnetic members) as main constituent members (i.e. half-cylindrical fuselage skins) in aircraft for purposes of reducing the weight of the aircraft.

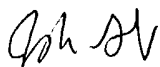
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Conclusion

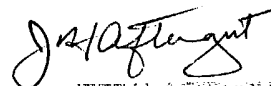
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John L. Goff
April 14, 2004



JEFF H. AFTERGUT
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